

**What is claimed is:**

1           1.    A method of startup for an optical drive with  
2   an auto-balance system, comprising the steps of:

3           providing an optical disk and loading the optical  
4           disk into the optical drive with the auto-  
5           balance system; and

6           performing a startup procedure for the optical  
7           drive, the startup procedure comprising a servo  
8           activating procedure, a system parameter  
9           adjustment procedure, and a rotation speed  
10          control procedure for controlling the rotation  
11          speed of a spindle motor of the optical drive;

12          wherein the system parameter adjustment procedure  
13          and the rotation speed control procedure are  
14          performed alternately.

1           2.    The method of startup for an optical drive with  
2   an auto-balance system according to claim 1, wherein the  
3   servo activating procedure further comprises:

4           a rotating procedure of the spindle motor by a  
5           spindle server for activating closed-loop  
6           control of the spindle motor;

7           a focusing procedure of a focus point of the optical  
8           drive at a recording surface of the optical  
9           disk along a focusing direction by a focus  
10          server for activating closed-loop focus control  
11          of the focus point; and

12          a tracking procedure of the focus point at a  
13          tracking position of the optical disk along a

14 tracking direction by a track server for  
15 activating closed-loop track control of the  
16 focus point.

1 3. The method of startup for an optical drive with  
2 an auto-balance system according to claim 1, wherein the  
3 system parameter adjustment procedure is comprised of an  
4 optical signal adjustment procedure and an electric  
5 signal adjustment procedure for the optical disk.

1 4. The method of startup for an optical drive with  
2 an auto-balance system according to claim 1, whereat the  
3 rotation speed control procedure is performed cyclically  
4 when the system parameter adjustment procedure is  
5 performed with a cycle time of  $\Delta T$ .

1 5. The method of startup for an optical drive with  
2 an auto-balance system according to claim 4, whereat the  
3 rotation speed control procedure is performed for  
4 maintaining the rotation speed of the spindle motor  
5 according to a corresponding portion of a spindle motor  
6 RPM profile.

1 6. The method of startup for an optical drive with  
2 an auto-balance system according to claim 4, wherein an  
3 interrupt subroutine is performed cyclically with the  
4 cycle time of  $\Delta T$  to perform the rotation speed control  
5 procedure.

1 7. A method of startup for an optical drive with  
2 an auto-balance system, comprising the steps of:

3 providing an optical disk and loading the optical  
4 disk into the optical drive with the auto-  
5 balance system; and  
6 performing a startup procedure for the optical  
7 drive, the startup procedure comprising a servo  
8 activating procedure, and a system parameter  
9 adjustment procedure;  
10 wherein a rotation speed control procedure for  
11 controlling a rotation speed of a spindle motor  
12 of the optical drive is performed cyclically  
13 when the system parameter adjustment procedure  
14 is performed.

1 8. The method of startup for an optical drive with  
2 an auto-balance system according to claim 7, wherein the  
3 servo activating procedure further comprises:

4 a rotating procedure of the spindle motor by a  
5 spindle server for activating closed-loop  
6 control of the spindle motor;

7 a focusing procedure of a focus point of the optical  
8 drive at a recording surface of the optical  
9 disk along a focusing direction by a focus  
10 server for activating closed-loop focus control  
11 of the focus point; and

12 a tracking procedure of the focus point at a  
13 tracking position of the optical disk along a  
14 tracking direction by a track server for  
15 activating closed-loop track control of the  
16 focus point.

1           9.    The method of startup for an optical drive with  
2    an auto-balance system according to claim 7, wherein the  
3    system parameter adjustment procedure is comprised of an  
4    optical signal adjustment procedure and an electric  
5    signal adjustment procedure for the optical disk.

1           10. The method of startup for an optical drive with  
2    an auto-balance system according to claim 7, wherein an  
3    interrupt subroutine is performed cyclically to perform  
4    the rotation speed control procedure.

1           11. The method of startup for an optical drive with  
2    an auto-balance system according to claim 10, wherein the  
3    interrupt subroutine is performed for maintaining the  
4    rotation speed of the spindle motor according to a  
5    corresponding portion of a spindle motor RPM profile.

1           12. The method of startup for an optical drive with  
2    an auto-balance system according to claim 7, wherein the  
3    servo activating procedure and the system parameter  
4    adjustment procedure are performed by a main program.